

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended 2015/830.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: Toluene
Product No. 8077, 8078, 9351, 9336, 5046, 4483, 6784

Additional identification

Chemical name: Toluene
Chemical formula: C₇H₈
INDEX No. 601-021-00-3
CAS-No. 108-88-3
EC No. 203-625-9
REACH Registration No. 01-2119471310-51-0000

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: For Laboratory, Research or Manufacturing Use.
Uses advised against: Not determined.

1.3 Details of the supplier of the safety data sheet

Avantor Performance Materials Poland S.A.
Sowinskiego 11str., 44-101 Gliwice,
Poland

Telephone: 48 32 239-20-00
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Contact person: Product Information Compliance
E-mail: export@avantormaterials.com

E-mail address of person responsible for this SDS: SDS@avantormaterials.com

1.4 Emergency telephone number: CHEMTREC: (353)-19014670

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

Classification according to Regulation (EC) No 1272/2008 as amended.

Physical Hazards

Flammable liquids Category 2 H225: Highly flammable liquid and vapour.

Health Hazards

Acute toxicity (Oral) Category 4 H302: Harmful if swallowed.

Skin irritation Category 2 H315: Causes skin irritation.

Toxic to reproduction Category 2 H361d: Suspected of damaging the unborn child.

Specific Target Organ Toxicity -
Single Exposure Category 3 H336: May cause drowsiness or dizziness.

Specific Target Organ Toxicity - Repeated Exposure	Category 2	H373: May cause damage to organs through prolonged or repeated exposure.
Aspiration Hazard	Category 1	H304: May be fatal if swallowed and enters airways.

2.2 Label Elements

Contains:

Toluene



Signal Word:

Danger

Hazard Statement(s):

H225: Highly flammable liquid and vapour.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H336: May cause drowsiness or dizziness.
H361d: Suspected of damaging the unborn child.
H373: May cause damage to organs through prolonged or repeated exposure.
H302: Harmful if swallowed.

Precautionary Statements

Prevention:

P201: Obtain special instructions before use.
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P260: Do not breathe dust/fume/gas/mist/vapours/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P331: Do NOT induce vomiting.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312: Call a POISON CENTRE/doctor if you feel unwell.
P308+P313: IF exposed or concerned: Get medical advice/attention.

2.3 Other hazards

No data available.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Concentration	CAS-No.	EC No.	REACH Registration No.	M-Factor:	Notes
Toluene	50 - <100%	108-88-3	203-625-9	01- 2119471310- 51-0000	No data available.	#

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

This substance has workplace exposure limit(s).

SECTION 4: First Aid Measures

General: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

4.1 Description of first aid measures

Inhalation: Move to fresh air.

Skin Contact: Get medical attention if symptoms occur. Take off immediately all contaminated clothing. Rinse skin with water [or shower].

Eye contact: Flush thoroughly with water. If irritation occurs, get medical assistance.

Ingestion: Rinse mouth. Call a doctor or poison control centre immediately. Never give liquid to an unconscious person. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not induce vomiting without medical advice.

4.2 Most important symptoms and effects, both acute and delayed: No data available.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: No data available.

Treatment: Symptoms may be delayed.

SECTION 5: Firefighting Measures

General Fire Hazards: Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk.

5.1 Extinguishing media Suitable extinguishing media:

Water Spray, Fog, CO2, Dry Chemical, or Standard Foam

Unsuitable extinguishing media:

Avoid water in straight hose stream; will scatter and spread fire.

5.2 Special hazards arising from the substance or mixture:

Vapours may cause a flash fire or ignite explosively.

5.3 Advice for firefighters Special fire fighting procedures:

No data available.

Special protective equipment for firefighters:

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

SECTION 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

Ventilate closed spaces before entering them. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep upwind.

6.2 Environmental Precautions:

Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up:

Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Dyke far ahead of larger spill for later recovery and disposal. In case of leakage, eliminate all ignition sources.

6.4 Reference to other sections:

No data available.

SECTION 7: Handling and Storage:

7.1 Precautions for safe handling:

Do not taste or swallow. Wash hands thoroughly after handling. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground and bond container and receiving equipment. Take precautionary measures against static discharges. Use non-sparking tools. Use explosion-proof [electrical/ventilating/lighting] equipment. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Use personal protective equipment as required. Wear protective gloves/protective clothing/eye protection/face protection. Remove contaminated clothing and wash the skin thoroughly with soap and water after work. See Section 8 of the SDS for Personal Protective Equipment. Do not eat, drink or smoke when using the product. Wash at the end of each work shift and before eating, smoking or using the toilet.

7.2 Conditions for safe storage, including any incompatibilities:

Store locked up. Store in a well-ventilated place. Store in a cool place.

7.3 Specific end use(s):

No data available.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

Occupational Exposure Limits

Chemical name	Type	Exposure Limit Values	Source
Toluene	TWA	50 ppm 192 mg/m ³	Ireland. Occupational Exposure Limits (2011)
	STEL	100 ppm 384 mg/m ³	Ireland. Occupational Exposure Limits (2011)
	TWA	50 ppm 192 mg/m ³	EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU (12 2009)
	STEL	100 ppm 384 mg/m ³	EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU (12 2009)

8.2 Exposure controls

Appropriate Engineering Controls:

No special requirements under ordinary conditions of use and with adequate ventilation.

Individual protection measures, such as personal protective equipment

General information:

Use explosion-proof ventilation equipment. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Eye/face protection:

Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand Protection:	Material: Chemical resistant gloves
Other:	Wear suitable protective clothing.
Respiratory Protection:	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Hygiene measures:	Do not eat, drink or smoke when using the product. Wash hands after handling. When using do not smoke. Observe good industrial hygiene practices. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Wash hands before breaks and immediately after handling the product.
Environmental Controls:	No data available.

SECTION 9: Physical And Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state:	Liquid
Form:	Liquid
Colour:	Colorless
Odour:	No data available.
Odour Threshold:	No data available.
pH:	No data available.
Freezing point:	-94,9 °C
Boiling Point:	110 °C
Flash Point:	4 °C (Closed Cup)
Evaporation Rate:	2,24 (butyl acetate=1)
Flammability (solid, gas):	No data available.
Flammability limit - upper (%)	7,1 %(V) 7 %(V)
Flammability limit - lower (%)	1,1 %(V) 1,27 %(V)
Vapour pressure:	3,8 kPa (25 °C)
Vapour density (air=1):	3,1 Air=1
Density:	0,86 g/ml (20 °C)
Relative density:	0,86 (20 °C)
Solubility(ies)	
Solubility in Water:	0,7 g/l (23,3 °C)
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	2,73
Autoignition Temperature:	480 °C
Decomposition Temperature:	No data available.
Viscosity:	No data available.
Explosive properties:	No data available.
Oxidising Properties:	No data available.

9.2 Other information

Molecular weight:	92,14 g/mol (C ₇ H ₈)
VOC content:	EC Directive 2004/42: 860 g/l ~100 % (calculated)

SECTION 10: Stability and Reactivity

10.1 Reactivity:	No dangerous reaction known under conditions of normal use.
10.2 Chemical Stability:	Material is stable under normal conditions.
10.3 Possibility of Hazardous Reactions:	Hazardous polymerization does not occur.
10.4 Conditions to Avoid:	No special precautions. Heat, sparks, flames.
10.5 Incompatible Materials:	None known.
10.6 Hazardous Decomposition Products:	Not determined.

SECTION 11: Toxicological Information

Information on likely routes of exposure

Inhalation:	None known or expected under normal use.
Skin Contact:	No data available.
Eye contact:	None known or expected under normal use.
Ingestion:	Harmful if swallowed.

11.1 Information on toxicological effects

Acute toxicity

Oral

Product:	LD 50 (Rat): 636 mg/kg
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Dermal

Product:	Not classified for acute toxicity based on available data. LD 50 (Rabbit) 12.124 mg/kg
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Inhalation

Product:	LC 50 (Rat, 1 h): 26700 ppm LC 50 (Rat, 2 h): 12200 ppm LC 50 (Mouse, 24 h): 400 ppm LC 50 (Rat, 4 h): 8000 ppm LC 50 (Mouse, 8 h): 5320 ppm
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Repeated dose toxicity

Product:	None known.
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Skin Corrosion/Irritation:

Product:	No data available.
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Serious Eye Damage/Eye Irritation:

Product:	Not known.
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Respiratory or Skin Sensitisation:

Product:	Not a skin nor a respiratory sensitizer.
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Germ Cell Mutagenicity

In vitro

Product: No mutagenic components identified

In vivo

Product: No mutagenic components identified

Carcinogenicity

Product: This substance has no evidence of carcinogenic properties.

Reproductive toxicity

Product: Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Aspiration Hazard

Product: May be fatal if swallowed and enters airways.

Other Adverse Effects: None known.

SECTION 12: Ecological Information

General information: Not regulated

12.1 Toxicity

Acute toxicity

Fish

Product: No data available.

Specified substance(s)

Toluene
LC 50 (Fathead minnow (*Pimephales promelas*), 96 h): 12,6 mg/l (Static) Mortality
LC 50 (Coho salmon, silver salmon (*Oncorhynchus kisutch*), 96 h): 5,5 mg/l (Flow through) Mortality

Aquatic Invertebrates

Product: No data available.

Specified substance(s)

Toluene
EC 50 (Water flea (*Daphnia magna*), 48 h): < 9,83 mg/l (Static) Intoxication
EC 50 (Brine shrimp (*Artemia* sp.), 24 h): 22,1 - 54,1 mg/l (Static) Intoxication
EC 50 (Water flea (*Daphnia magna*), 48 h): 5,46 - 9,83 mg/l (Static) Intoxication
LC 50 (Water flea (*Daphnia magna*), 48 h): 54,6 - 174,7 mg/l (Static) Mortality

Chronic toxicity

Fish

Product: No data available.

Specified substance(s)
Toluene No data available.

Aquatic Invertebrates
Product: No data available.

Specified substance(s)
Toluene No data available.

Toxicity to aquatic plants
Product: No data available.

Specified substance(s)
Toluene No data available.

12.2 Persistence and Degradability

Biodegradation
Product: There is no data on the degradability of this product.

Specified substance(s)
Toluene No data available.

BOD/COD Ratio
Product Not determined.

Specified substance(s)
Toluene No data available.

12.3 Bioaccumulative Potential

Product: Not known.

Specified substance(s)
Toluene
Green algae (*Selenastrum capricornutum*), Bioconcentration Factor (BCF): 3.016 (Static)
Shore crab (*Hemigrapsus nudus*), Bioconcentration Factor (BCF): 31 (Flow through)
Ide, silver or golden orfe (*Leuciscus idus*), Bioconcentration Factor (BCF): 94 (Not reported)

12.4 Mobility in Soil: No data available.
Known or predicted distribution to environmental compartments
Toluene No data available.

12.5 Results of PBT and vPvB assessment: Not available.
Toluene No data available.

12.6 Other Adverse Effects: No data available.

12.7 Additional Information: No data available.

SECTION 13: Disposal Considerations

13.1 Waste treatment methods

General information: No data available.

Disposal methods: Discharge, treatment, or disposal may be subject to national, state, or local laws. Do not allow to enter drains, sewers or watercourses.

SECTION 14: Transport Information

ADR

14.1 UN Number:	UN 1294
14.2 UN Proper Shipping Name:	TOLUENE
14.3 Transport Hazard Class(es)	
Class:	3
Label(s):	3
Hazard No. (ADR):	33
Tunnel restriction code:	(D/E)
14.4 Packing Group:	II
14.5 Environmental Hazards:	No
14.6 Special precautions for user:	Not determined.

RID

14.1 UN Number:	UN 1294
14.2 UN Proper Shipping Name	TOLUENE
14.3 Transport Hazard Class(es)	
Class:	3
Label(s):	3
14.4 Packing Group:	II
14.5 Environmental Hazards:	No
14.6 Special precautions for user:	Not determined.

IMDG

14.1 UN Number:	UN 1294
14.2 UN Proper Shipping Name:	TOLUENE
14.3 Transport Hazard Class(es)	
Class:	3
Label(s):	3
EmS No.:	F-E, S-D
14.4 Packing Group:	II
14.5 Environmental Hazards:	No
14.6 Special precautions for user:	Not determined.

IATA

14.1 UN Number:	UN 1294
14.2 Proper Shipping Name:	Toluene
14.3 Transport Hazard Class(es):	
Class:	3
Label(s):	3
14.4 Packing Group:	II
14.5 Environmental Hazards:	No
14.6 Special precautions for user:	Not determined.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code: Not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

EU Regulations

Regulation (EC) No. 2037/2000 Substances that deplete the ozone layer: none

Regulation (EC) No. 850/2004 on persistent organic pollutants: none

Regulation (EC) No. 689/2008 Import and export of dangerous chemicals: none

Regulation (EC) No. 1907/2006 REACH Annex XIV Substance subject to authorisation, as amended: none

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use:

Chemical name	CAS-No.	Concentration
Toluene	108-88-3	100%

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work.: none

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breast feeding.:

Chemical name	CAS-No.	Concentration
Toluene	108-88-3	100%

Directive 96/82/EC (Seveso III): on the control of major accident hazards involving dangerous substances:

Chemical name	CAS-No.	Concentration
Toluene	108-88-3	100%

EU. Regulation No. 166/2006 PRTR (Pollutant Release and Transfer Registry), Annex II: Pollutants:

Chemical name	CAS-No.	Concentration
Toluene	108-88-3	100%

Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:

Chemical name	CAS-No.	Concentration
Toluene	108-88-3	100%

15.2 Chemical safety assessment:

No Chemical Safety Assessment has been carried out.

SECTION 16: Other Information

Revision Information: Not relevant.

References

PBT PBT: persistent, bioaccumulative and toxic substance.
vPvB vPvB: very persistent and very bioaccumulative substance.

Key literature references and sources for data: No data available.

Wording of the H-statements in sections 2 and 3

H225 Highly flammable liquid and vapour.
SDS_IE - SDS000005046

H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

Training information: No data available.

Issue Date: 25.09.2018

SDS No.:

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